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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,022	04/12/2001	Keith K. Sturcken	FE-00519	5256

22897 7590 05/29/2003

DEMONT & BREYER, LLC  
SUITE 250  
100 COMMONS WAY  
HOLMDEL, NJ 07733

EXAMINER

LATTIN, CHRISTOPHER W

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 05/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/834,022

Applicant(s)

STURCKEN, KEITH K.

Examiner

Christopher W Lattin

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-15 is/are allowed.
- 6) ☒ Claim(s) 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frew et al. (U.S. Patent 5,327,327) in view of Tutsch et al. (U.S. Patent 6,380,616).

Frew et al. teach an article comprising a plurality of IC chips 10 having electrical leads extending to bonding pads on one side of the chip, bonding pads electrically connected to the electrical leads, oblong bonded lead tips 31 on the bonding pads that extend beyond one side of each chip to which the plurality of IC chips is aligned, and connected to a printed circuit board, but fail to teach that the lead tips are elongated bumps. See especially Figs. 5a and 5b and column 3 line 3 – column 4 line 15. Tutsch et al. teach a method of forming bumps, which are referred to as "balls", to electrically connect the chips to an outside circuit. The bumps replace the two-part bump and lead tip taught by Frew et al. with one connection material that connects the contact pads with an outside circuit. It would have been obvious at the time of the invention to replace the two-part bump and lead tip taught by Frew et al. with one connection material a bump that extends past a reference plane and connects the contact pads with an outside circuit.

***Allowable Subject Matter***

Claims 9-15 allowed. The prior art of record fails to adequately anticipate or obviate either singularly or in combination with another reference a chip stack comprising a plurality of integrated circuit chips ("IC") that are disposed in spaced and parallel relation to one another, each said IC having two major surfaces, four sides, an area, wherein: *at least a portion of said kerf along one of said sides of each IC is removed defining a foreshortened side thereof*; said foreshortened side of said ICs are aligned; a plurality of bumps are disposed along said foreshortened side between opposing major surfaces of adjacent ICs; *each said bump is disposed partially in said active device area of said IC and partially beyond an edge of said foreshortened side.*

In the response filed 2/3/03 applicant noted that the language "removing at least a portion of said kerf" was defined to mean removing a portion of the width of the kerf for the complete length of the side bearing the bumps. (See, p. 10, ~ 0063 through p. 11, ~ 0063.) Claim 9 recites that the side having the portion of the kerf removed is defined as a "foreshortened side." Thus, the term "foreshortened side" means that the full extent of the side is shortened.

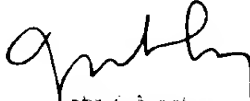
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Lattin whose telephone number is (703) 305-3017. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached at (703) 308-3325. The fax numbers for this Group are (703) 872-9318 for responses to non-final actions and (703) 872-9319 responses to final actions.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

CWL  
May 22, 2003

  
John E. Niebling  
Supervisory Patent Examiner  
Technology Center